

Psychometric properties of the Aggression Questionnaire: A replication in a sample of partner-assaultive men in psychological treatment

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Abstract

Background: The Aggression Questionnaire (Buss & Perry, 1992) is one of the most widely used validated self-report measures to assess aggression. This study analyzes the factorial structure, internal consistency, and convergent validity of the AQ in a Spanish sample with high levels of violence. **Method:** The questionnaire was administered to 767 partner-assaultive men undergoing psychological treatment. **Results:** The results of the confirmatory factor analysis supported the four-factor structure. Also, positive correlations between the AQ and other instruments measuring aggression were found, finding that aggression and anger decrease with age in this sample. **Conclusions:** The results obtained showed that the AQ is a suitable instrument to assess aggression, anger, and hostility in partner-assaultive men.

Keywords: Aggression Questionnaire, validation, intimate partner violence.

Resumen

Propiedades psicométricas del Cuestionario de Agresión: una replicación en una muestra de maltratadores en tratamiento psicológico.

Antecedentes: el Cuestionario de Agresión (Buss & Perry, 1992) constituye una de las medidas de auto-informe más utilizadas para medir agresión. Este estudio analiza la estructura factorial, consistencia interna y validez convergente del AQ en una muestra española con altos niveles de violencia. **Método:** el cuestionario fue aplicado a 767 maltratadores que se encontraban bajo tratamiento psicológico. **Resultados:** los resultados del análisis factorial confirmatorio apoyan la estructura de cuatro factores. Asimismo, se encontraron correlaciones positivas y significativas entre el AQ y otros instrumentos que miden agresión, encontrándose que la agresión y la ira disminuyen con la edad en esta muestra. **Conclusiones:** los resultados obtenidos permiten concluir que el AQ es un instrumento adecuado para evaluar agresión, ira y hostilidad en hombres que maltratan a sus parejas.

Palabras clave: Cuestionario de Agresión, validación, violencia, relaciones íntimas de pareja.

Intimate partner violence (IPV) is one of the most important public health concerns of contemporary society, not only because of the magnitude of the problem, but also given the severity of personal, social and legal consequences (World Health Organization [WHO], 2002). Until a relatively short time ago, psychological violence was often considered a form of secondary violence, less severe than physical violence (Fritz & O'Leary, 2004), and it therefore received much less attention. However, some data indicate the need to more deeply define and analyze psychological violence in couple relationships, as well as its consequences (Winstok & Sowon-Basheer, 2015). Accordingly, some studies suggest that psychological violence has an impact on the victim's mental health that is at least comparable to that of physical violence (Almendros, Gámez-Guadix, Carroles, Rodríguez-Carballeira, & Porrúa, 2009).

In recent years, research of the relevant clinical characteristics and typologies of partner-violent men concludes that the

generalization of violence beyond the couple relationship is a key variable to determine both the severity of the problem (Holtzworth-Munroe, Meehan, Herron, Rehman, & Stuart, 2000) and the risk of violence of these aggressors (Graña, Redondo, Muñoz-Rivas, & Cantos, 2014). Anger and hostility are the factors most frequently associated with partner violence (Birkley & Eckhardt, 2015), often serving to justify violent behavior. They also provoke a high state of physiological activation in the aggressor, which increases the likelihood of aggressive behavior towards the partner (Birkley & Eckhardt, 2015). In a recent meta-analysis, Birkley and Eckhardt (2015) concluded that both anger and hostility are moderately associated with partner violence, finding a greater relationship between anger and partner violence as the severity of assaults committed increased. Such findings have led to the frequent inclusion of anger management techniques in treatment programs with this type of aggressors, being a core element of many of the intervention programs carried out with this population (Babcock, Green, & Robie, 2004; Murphy, Taft, & Eckhardt, 2007).

There is a need for instruments with psychometric guarantees to assess aggression, anger, and hostility in partner-violent men. These variables are indicators of the severity of the violence perpetrated by partner-assaultive men and are essential to

consider when designing specific and effective intervention programs with this population. Particularly, Buss and Perry's (1992) Aggression Questionnaire (AQ) is a self-report measure used to assess these variables. It is based on Buss and Durkee's (1957) Hostility Inventory (BDHI) but, in contrast to the BDHI, in which the items were assigned to different scales as a function of their apparent validity, Buss and Perry used factor analysis to develop the AQ.

The factorial analyses carried out by Buss and Perry (1992) revealed four factors, which were called Physical Aggression, Verbal Aggression, Hostility, and Anger. The factorial structure and the subscale distinction of the AQ have also been found in other studies (Bernstein & Gesn, 1997; Harris, 1995). Nevertheless, there are some discrepancies with regard to the items included in the various factors (García-León et al., 2002; Nakano, 2001), and other studies could not replicate the structure in offender populations (Williams, Boyd, Cascardi, & Poythress, 1996).

The AQ has also been adapted in English-speaking and Spanish samples: United Kingdom (Archer, Holloway, & McLouglin, 1995), Italy (Fossati, Maffei, Acquarini, & Di Ceglie, 2003), Chile (Valdivia-Peralta, Fonseca-Pedrero, González-Bravo, & Lemos-Giráldez, 2014), Argentina (Reyna, Lello, Sánchez, & Brussino, 2011), Mexico (Pérez, Ortega, Rincón, García, & Romero, 2013), and Spain (Andreu, Peña, & Graña, 2002). The AQ has also been used in partner-violent men (Holtzworth-Munroe, Rehman, & Herron, 2000).

The AQ has also been adapted to various samples of different ages in Spain: preadolescents and adolescents aged 8 - 16 years (Chaín-Pinzón, Lorenzo-Seva, & Vigil-Colet, 2012), adolescents and young people aged 15 - 25 (Andreu et al., 2002), and adults aged 16 - 84 (Morales-Vives, Codorniu-Raga, & Vigil-Colet, 2005). Nevertheless, there is no adaptation in samples of partner-assaultive men; hence, the aim of this study is to determine the psychometric guarantees (reliability and validity) of the AQ in a Spanish sample of partner-violent men who are undergoing psychological treatment. We also hope to obtain a valid instrument to assess not only physical and verbal aggression in this population but also the emotional and cognitive dimensions of aggression: anger and hostility. Many studies identify anger and hostility as risk factors for the perpetration of violent behaviors in intimate relationships. Therefore, this study fills a gap in the literature, exploring whether this scale, which is often used in IPV research, is a valid measure to assess aggression in offenders.

Method

Participants

Participants were men from Madrid (Spain) who had been sentenced to less than two years' imprisonment for IPV. The sentence had been substituted by a program of psychological treatment, as established in Section IV of the Spanish Law 1/2004 on Measures of Comprehensive Protection against Gender Violence. The total study sample was assessed between the years 2004 and 2015 and consisted of 767 men aged between 18 and 74 years old, with a mean age of 38.38 ($SD = 10.28$). Concerning the offense, 84.9% were convicted of physical violence—the most frequent forms being hitting, grabbing, hair-pulling, and shaking—,

whereas 15.1% were convicted of psychological violence—mainly threatening and insulting their partners. Regarding educational level, 41.3% had completed elementary school, 41.5% had completed high school, and 17.2% had attended at least some college. Concerning marital status, 19% were married, 2% were remarried, 0.5% were widowed, 12.4% were separated, 20.1% were divorced, 36.9% were single, and 9.1% were cohabitating as a common-law couple. More than half of the sample was Spanish (59.3%), 30.1% were from Latin American countries, and 10.6% were from other countries.

Instruments

Sociodemographic Questionnaire (Graña et al., 2014). Diverse items were included to assess participants' characteristics in the following sociodemographic and personal variables: age, marital status, nationality, education level, and professional activity. The information relating to the crime was obtained through the analysis of court sentences. We did not have permission to access the information provided by the victims.

Aggression Questionnaire (AQ; Buss & Perry, 1992). This 29-item questionnaire (rated on a 5-point Likert scale ranging from 1 = *completely false for me* to 5 = *completely true for me*) measures Physical Aggression, Verbal Aggression, Anger, and Hostility. Test-retest reliability correlations range from .72 for the Verbal Aggression subscale to .85 for Physical Aggression (Buss & Perry, 1992). In the Spanish adaptation, the alpha coefficient was .86 for Physical Aggression, .77 for Anger, .68 for Verbal Aggression and .72 for Hostility (Andreu et al., 2002).

Severity-frequency of partner violence. This dimension was measured with the *Revised Conflict Tactics Scale* (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), Spanish adaptation by Graña, Andreu, Peña, and Rodríguez-Biezma (2013). The CTS2 is a 78-item self-report questionnaire assessing behaviors during relationship conflict. The items are divided into five subscales: Negotiation, Psychological Aggression, Physical Assault, Injury, and Sexual Coercion. The results found in the present study indicated good internal consistency, with a value of $\alpha = .79$ for the CTS2 global scale.

State-Trait Anger Expression Inventory (STAXI-2; Spielberger, 1999). The Spanish adaptation by Miguel-Tobal, Casado, Cano-Vindel, and Spielberger (2001) was used, consisting of 49 items (rated on a 4-point Likert-scale ranging from *not at all* to *very much*) that measure State Anger, Trait Anger, and different forms of Anger Expression and Control. The results found in the present study indicated good internal consistency, with a value of $\alpha = .80$ for the global STAXI scale.

Procedure

Psychological assessment was carried out individually, with two therapists trained in the application of the protocol. The entire assessment was performed before initiating the psychological treatment program in which detainees had to participate by court order. It was the first time they had participated in a program of these characteristics. Between four and eight weekly 60-minute individual sessions were carried out with each participant, during which the following activities were performed: (a) explanation of the conditions and goals of the research, and obtention of informed consent; (b) collection of sociodemographic data and

analysis of the offence committed; (c) counter-balanced self-administration of the scales described in the Instruments section: Sociodemographic Questionnaire, AQ, CTS2, and STAXI-2. To minimize the social desirability of participants' responses, they were informed that the therapists responsible for the group therapy would not have access to their responses. All questionnaires were self-administered, and all the questions referred to the partner who was the victim of the offense for which they had been convicted, who was not necessarily their partner at the time of the evaluation.

Data analysis

All statistical analyses were performed using the 19.0 SPSS and AMOS 20 statistical packages. Internal consistency of the scales was calculated with Cronbach's alpha coefficient. To analyze the factorial structure of the AQ, we conducted confirmatory factor analysis (CFA) through the AMOS 20 program, initially hypothesizing the four-factor structure of the Spanish and English versions. The goodness-of-fit indexes used to assess CFA were: CMIN/df, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and root mean-square error of approximation (RMSEA). Values equal to or higher than .9 are considered acceptable for GFI and AGFI, whereas for RMSEA, values equal to or lower than .05 are considered excellent, and values lower than .08 are acceptable. The ratio CMIN/df should be close to 1 for a correct model. Finally, analysis of variance (ANOVA) with post-hoc comparisons (Bonferroni) was conducted to assess age differences in the AQ scores.

Results

Confirmatory factor analysis

To assess the AQ structure, we conducted CFA using the maximum likelihood estimation method. The CFA indicated that the four-factor model had a good fit (CMIN/df = 2.07, GFI = .93, AGFI = .91, RMSEA = .03). Both the GFI and the AGFI indexes were higher than .90, and the RMSEA index was lower than .05, so it was concluded that the data fit the four-factor model proposed by Buss and Perry (1992). The square multiple correlations for each subscale of the AQ and the standardized factor loading of each item are shown in Table 1. The factor loadings of the items on each of the four factors were sufficiently high (> .40) and significant ($p < .05$), except for three items: Item 4 "Sometimes I'm jealous," Item 15 "I am a calm person," and Item 24 "I can't find any good reason to hit anyone," so they were removed, and CFA was repeated, improving the fit of the model (CMIN/df = 2.11, GFI = .94, AGFI = .93, RMSEA = .04). The square multiple correlations for each subscale and the standardized factor loading of each item are shown in Table 2. In this model, the factor loadings of all the items were also higher than .40 and significant ($p < .05$). Reliability (Cronbach alpha coefficient) of the four subscales also improved after removing these three items (see Table 3).

Concurrent validity

To assess the validity of the AQ, Pearson correlations between the AQ subscales and the scores in some of the subscales of the CTS2 and the STAXI2 were calculated. As shown in Table 4, all the correlations were statistically significant ($p < .001$), with correlations being either small-to-moderate or moderate.

Table 1
Standardized factor loadings of the AQ

Items	Squared multiple correlations	Factor loadings
1. Sometimes I can't control the impulse to hit another person	.31	.56
5. If I am provoked enough, I may hit another person	.53	.72
9. If someone hits me, I hit him back	.40	.63
13. I get into fights more often than people normally do	.40	.63
17. If I have to resort to violence to defend my rights, I do it	.36	.60
21. There are people who provoke me to the point of fighting with them	.44	.66
24. I can't find any good reason to hit anyone	.04	.21
27. I've threatened people I don't know	.33	.57
29. I've sometimes got so angry that I've broken things	.30	.55
2. When I don't agree with my friends, I argue openly with them	.27	.52
6. I often disagree with people	.19	.43
10. When people annoy me, I argue with them	.37	.60
14. When people disagree with me, I can't avoid arguing with them	.46	.68
18. My friends say that I argue a lot	.36	.60
3. I get annoyed quickly, but it doesn't last long	.21	.46
7. When I'm frustrated, I show my annoyance	.36	.60
11. Sometimes I get so annoyed that I feel I'm going to burst	.47	.69
15. I am a calm person	.04	.20
19. Some of my friends think I'm an impulsive person	.44	.67
22. Sometimes I lose my temper for no reason	.49	.70
25. I have difficulty controlling my temper	.44	.66
4. Sometimes I'm jealous	.12	.35
8. Sometimes I feel that life has treated me unfairly	.26	.51
12. It always seems to be others who get chances in life	.40	.63
16. I wonder why sometimes I feel so bitter about certain things	.42	.65
20. I know that my "friends" criticize me behind my back	.34	.58
23. I'm suspicious of strangers who are too friendly	.19	.44
26. Sometimes I feel that people are laughing at me behind my back	.42	.65
28. When people come over as especially friendly, I ask myself what they want from me	.23	.48

Differences by age

Considering the relevance of age in the analysis of aggression, we analyzed differences in aggression taking account the participants' age. The first group was the youngest, including men up to age 29.

The second group was made up of men between 30 and 50 years of age, and the third group included men older than 50. Statistically significant differences in the age group were found for the total AQ score, $F(2, 764) = 19.45, p < .001$, Physical Aggression, $F(2, 764) = 33.33, p < .001$, Verbal Aggression, $F(2, 764) = 5.29; p < .01$, and

Table 2
Standardized factor loadings of the AQ after deleting items

Items	Squared multiple correlations	Factor loadings
1. Sometimes I can't control the impulse to hit another person	.31	.56
5. If I am provoked enough, I may hit another person	.53	.73
9. If someone hits me, I hit him back	.40	.63
13. I get into fights more often than people normally do	.40	.63
17. If I have to resort to violence to defend my rights, I do it	.36	.60
21. There are people who provoke me to the point of fighting with them	.44	.66
27. I've threatened people I don't know	.31	.55
29. I've sometimes got so angry that I've broken things	.33	.57
2. When I don't agree with my friends, I argue openly with them	.30	.54
6. I often disagree with people	.18	.43
10. When people annoy me, I argue with them	.38	.62
14. When people disagree with me, I can't avoid arguing with them	.48	.69
18. My friends say that I argue a lot	.35	.59
3. I get annoyed quickly, but it doesn't last long	.22	.46
7. When I'm frustrated, I show my annoyance	.38	.62
11. Sometimes I get so annoyed that I feel I'm going to burst	.47	.68
19. Some of my friends think I'm an impulsive person	.45	.67
22. Sometimes I lose my temper for no reason	.48	.69
25. I have difficulty controlling my temper	.43	.66
8. Sometimes I feel that life has treated me unfairly	.27	.52
12. It always seems to be others who get chances in life	.39	.62
16. I wonder why sometimes I feel so bitter about certain things	.43	.65
20. I know that my "friends" criticize me behind my back	.34	.58
23. I'm suspicious of strangers who are too friendly	.20	.45
26. Sometimes I feel that people are laughing at me behind my back	.41	.64
28. When people come over as especially friendly, I ask myself what they want from me	.23	.48

Table 3
Cronbach alpha coefficients of the AQ subscales

	Model 1	Model 2
Physical aggression	.76	.80
Verbal aggression	.68	.68
Anger	.75	.78
Hostility	.76	.76

Anger, $F(2, 764) = 15.12, p < .001$. In all cases, the group aged 29 years or less presented higher levels of aggression and anger, and the group aged over 50 had the lowest levels. No statistically significant differences were observed in verbal aggression and anger between the second (30 to 50 years) and third (> 50 years) groups (see Table 5). The effect size was estimated using the eta squared coefficient (η^2), and the values obtained for these coefficients ranged from $\eta^2 = .08$, for Physical Aggression, to $\eta^2 = .01$ for Hostility.

Table 4
Pearson's correlations, means, standard deviations and alpha coefficients for the AQ, CTS2, and STAXI2

Measure	Physical aggression	Verbal aggression	Anger	Hostility	Total	M	SD	α
Physical aggression	—					1.75	0.70	.79
Verbal aggression	.53***	—				2.13	0.77	.67
Anger	.64***	.61***	—			1.98	0.83	.77
Hostility	.43***	.44***	.53***	—		2.42	0.84	.76
Total score	.82***	.76***	.86***	.77***	—	2.06	0.63	.89
CTS2 Psychological aggression	.32***	.23***	.33***	.16***	.32***	16.87	24.30	.76
CTS2 Physical aggression	.24***	.15***	.21***	.16***	.24***	3.57	8.40	.64
STAXI2 - State Anger	.23***	.20***	.25***	.24***	.29***	1.28	2.93	.85
STAXI2 - Trait Anger	.47***	.37***	.58***	.39***	.57***	5.90	4.41	.84

Note: AQ = Aggression Questionnaire; CTS2 = Revised Conflict Tactics Scale; STAXI2 = State-Trait Anger Expression Inventory
*** $p < .001$

Table 5
Means, standard deviations and differences by age for the AQ

	Group 1 ≤29 years (n = 167)	Group 2 30-50 years (n = 505)	Group 3 >50 years (n = 95)	Total (N = 767)	F
	M (SD)	M (SD)	M (SD)	M (SD)	
Physical aggression	2.09 (0.84)	1.70 (0.63)	1.43 (0.52)	1.75 (0.70)	33.32*** 1>2*** 1>3*** 2>3**
Verbal aggression	2.29 (0.77)	2.11 (0.76)	1.99 (0.74)	2.13 (0.77)	5.28** 1>2* 1>3**
Anger	2.27 (0.92)	1.94 (0.81)	1.73 (0.63)	1.98 (0.83)	15.11*** 1>2*** 1>3***
Hostility	2.55 (0.82)	2.39 (0.83)	2.32 (0.93)	2.42 (0.84)	2.75 n.s.
Total score	2.28 (0.65)	2.01 (0.56)	1.85 (0.53)	2.05 (0.59)	19.44*** 1>2*** 1>3*** 2>3*

*p < .05. **p < .01. ***p < .001

Discussion

The main goal of this study was to assess the psychometric properties of the AQ in a sample of partner-assaultive men. Regarding the construct validity of the instrument, the CFA allows us to conclude, firstly, that the factorial structure of the AQ in this study coincides with that proposed in other studies, both in Spain (Andreu et al., 2002) and in other countries (Valdivia-Peralta et al., 2014). Therefore, this questionnaire provides a valid measurement of physical and verbal aggression, anger, and hostility in partner-assaultive men of Spain.

Regarding reliability of the four AQ subscales, the Physical Aggression subscale presented the highest internal consistency, followed by the subscales of Anger, Hostility, and Verbal Aggression. The indexes obtained are similar to those found in Spanish studies of the questionnaire and are considered sufficient to assess these constructs (Andreu et al., 2002; Morales-Vives et al., 2005).

We also analyzed convergent validity by correlating the AQ scales with other external variables, specifically, the Physical Aggression and Psychological Aggression subscales of the CTS2, and the State Anger and Trait Anger subscales of the STAXI2. Significant and positive correlations were found between the AQ Physical Aggression subscale and the Physical Aggression subscale of the CTS2, as well as between the AQ Verbal Aggression subscale and the Psychological Aggression of the CTS2, both very similar to the correlations found in other studies (Valdivia-Peralta et al., 2014). Finally, significant and positive correlations were found between Anger and Hostility subscales and State and Trait Anger of the STAXI2, with the highest correlation with Trait Anger. These correlations between the AQ subscales and other measures of aggression and anger provide evidence of the AQ's convergent validity, along the lines in other research (Pérez et al., 2013; Valdivia-Peralta et al., 2014).

Regarding age differences, the results are consistent with those found in other studies, indicating that aggression (Archer et al., 1995; Buss & Perry, 1992; Graña et al., 2009) and anger (Birditt & Fingerma, 2005) decrease with age. Specifically, it seems that partner violence (Graña et al., 2009; Timmons & O'Leary, 2004) and anger (Zimprich & Mascherek, 2012) both follow the same lifelong pattern, shaped like an inverted U, adding further evidence to the existence of the relationship between anger and partner violence. Nevertheless, in view of the cross-sectional

nature of this study, longitudinal studies are needed to verify the effect of age on the different types of aggression analyzed.

However, this study presents some limitations that should be taken into account. On the one hand, the sample may not be representative of the population of partner-assaultive men, as we have only analyzed the data of those who were sentenced to prison terms of less than two years. There may be differences in the severity of the problems involved, so generalization of the findings should be made with caution. On the other hand, social desirability may have affected the responses of the sample of this study, as participants may have thought that their responses could affect their legal status. Different studies have suggested that the relationship between age and, in particular, verbal aggression may be partly explained by age-related changes in response bias such as desirability and acquiescence. Further research is therefore needed to verify whether the results reported in the present study can be reproduced when response bias is controlled (Vigil-Colet et al., 2015).

In spite of these limitations, this study constitutes an important advance in research of partner-assaultive men. In recent years, numerous investigations have revealed that this type of aggressors do not constitute a homogeneous group, but rather, there are different subtypes as a function of the severity, frequency, and generality of the IPV, the levels of anger, and the presence of associated psychopathology (Holtzworth-Munroe et al., 2000). Having valid and reliable instruments to measure these characteristics will lead to early identification of the most severe partner-assaultive men with higher levels of aggression (Stoops, Bennett, & Vincent, 2010). In addition, these men with greater severity will probably need stricter and more long-term supervision by the social and judicial agents involved in the reintegration process.

Conflict of interest

The authors of this article declare they have no conflict of interest.

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